Datasheet

Infrared Micro-Raman Spectrometer ATRP8300Pro

Features

- Micro-infrared, micro-Raman, micro-imaging
- Micro area positioning device
- Ultra-high power optical positioning system
- Auto focus, auto scan;
- Broad reflection spectrum measurement (350-2500nm);
- Fully automatic reflectance spectrum imaging experiment;
- Ultra-high sensitivity, performance-to-noise ratio >6000:1
- Unique software controls switching light path
- Rapid positioning
- High-quality objective lens, micron-level light spot
- 5 million camera
- Raman excitation wavelength: 532, 633, 785, 830, 1064nm optional
- USB2.0

Application

- Nanoparticles and new materials
- Universities and research institutes
- Biology
- Forensic medicine identification
- Material science
- Medical immunoassay
- Agriculture and food identification
- Water pollution analysis
- Gem and inorganic mineral identification
- Environmental science

Description

This instrument is an advanced equipment that integrates micro-area Raman spectroscopy, micro-area infrared spectroscopy and optical digital microscopy. Infrared microscopes and Raman spectrometers can be used to characterize and analyze the surface morphology, particle size, roughness, reflection spectrum and Raman spectrum properties of nanomaterials respectively, thereby providing more comprehensive information on the sample and providing sharp microscopic images. image.

The ATRP8300Pro visual precise positioning Raman detection platform allows observers to detect Raman signals of different surface states on the sample, and can simultaneously display the micro-area morphology at the detected location on the computer.

ATRP8300Pro is equipped with an objective lens specially designed for the Raman system, which makes the laser spot close to the diffraction limit. The focus information is accurately and intuitively displayed on the computer through a 5-megapixel camera to improve the quality of the Raman spectrum.

At the same time, ATRP8300Pro uses high-performance Raman specially optimized for micro-Raman systems. It is industry-leading in terms of sensitivity, signal-to-noise ratio, stability, etc., providing a strong guarantee for Raman research.

Model	Feature
ATRP8300Pro	Micro-Raman + infrared integrated machine, Base
ATRP8300Pro-AF	Auto Focus
ATRP8300Pro-MP	Mapping type (highest configuration, auto-focus, auto-scan)

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1. Parameter

ATRP8300Pro (taking 785nm excitation wavelength as an example)	
Raman Spectroscopy Properties	
Spectral Stability	σ/μ < 0.5%　(COT 8 hours)
Temperature Stability	Spectral shift ≤ 1 cm^{-1} (10~40 ℃)
Signal-To-Noise Ratio	>6000:1
Detection Wavelength Range	Si：200nm~1100nm InGaAs：900-1700nm
Detector Dynamic Range	13000:1
Microscope Camera System	3 or 5 megapixel industrial camera
Focus Method	conjugate focus
Minimum Laser Spot Diameter	<20μm
Laser Stability	σ/μ <±0.2%
Laser Linewidth	0.08 nm
Communication Mode	USB2.0
Microscopic Reflectance Spectroscopy	
Operating Mode	Infrared reflectance spectrum
Band Range	350-2500nm
Spectral Resolution	● 350-1000nm：1.5nm ● 1000-2500nm：6.0nm
Spectral Bands	2060 band
Spot Size	<50μm
Microscopic Imaging	
Objective Lens	5X/10X/20X/50X plan apochromatic objective lens
Optical Focus	BS: Coarse and fine manual focusing AF: auto focus MP: auto focus, auto scan
Camera	5 million pixel CMOS sensor
X, Y Axis Electronically Controlled Two-Dimensional Platform	
Moving Range	50 X 50 mm, 100×100mm optional
Mobile Resolution	0.1 μm
Positioning Accuracy	1.0 μm
Scan Speed	20mm/s

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Z Axis (Auto Focus)	
Focus accuracy	≤ ±0.2μm
Maximum stroke	20 mm
Focus speed	Less than 10 s

2. Order Guide

Model	Feature
ATRP8300Pro-BS	Base
ATRP8300Pro-AF	Auto Focus
ATRP8300Pro-MP	Mapping type（auto-focus, auto-scan）

Model	Spectrometer focal length	Excitation wavelength/ nm	Power/m W	Wavenumber range*1/cm-1	Minimum resolution/cm-1
ATRP8300Pro-FL 210	210mm	532	100	150~10000	2.2
		633/638	80		2.2
		785	350		2.5
		1064	350		6.2
ATRP8300Pro-FL 350	350mm	532	100	150~10000	1.4
		633/638	80		1.4
		785	350		2.1
		1064	350		5.1
ATRP8300Pro-FL 510	510mm	532	100	150~10000	0.9
		633/638	80		0.9
		785	350		1.4
		1064	350		3.6
ATRP8300Pro-FL 810	810mm	532	100	150~10000	0.5
		633/638	80		0.5
		785	350		1.0
		1064	350		2.7

ATRP8300Pro-LT: Deep cooling to -30℃, ultra-long integration time (up to 1.3h)

ATRP8300Pro-SCM: Cooled SCMOS detector

ATRP8300Pro-BS: Basic type

ATRP8300Pro-AF: Autofocus type

ATRP8300Pro-MP: Mapping, autofocus

* 1: Customizable low wavenumber Raman (starting from 50cm-1), terahertz Raman (starting

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from 10cm^{-1})

The above parameters can be customized

*2: The parameters in the table are all standard parameters, and other parameters can be customized.

Naming example:

ATRP8300Pro-AF-LT-FL350-532+633: auto focus, long integration time, focal length of 350mm, excitation wavelength of dual wavelengths: 532nm and 633nm respectively.

ATRP8300Pro-MP-SCM-FL810-532+1064: scanning imaging, sCMOS detector, focal length is 810mm, excitation wavelength is dual wavelength: 532nm and 1064nm respectively.

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